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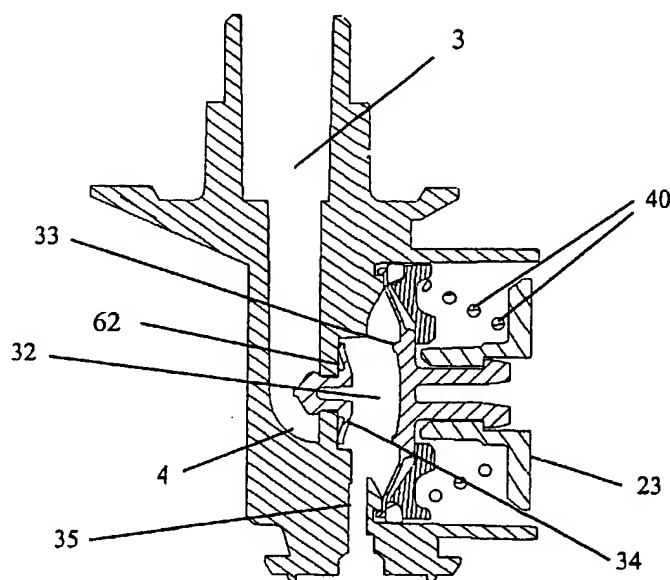
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[Continued on next page]

(54) Title: DIAPHRAM METERING CHAMBER DISPENSING SYSTEMS



(57) Abstract: This invention describes a method and apparatus for a dispenser assembly (1) suitable for dispensing reagent in an automatic system. In embodiments, the present invention may include a metering chamber (32) that accurately controls the amount of fluid dispensed. In other embodiments, the amount of fluid may be controlled by the action of a flexible diaphragm (33), which may be assembled into a cavity of a dispenser housing creating a metering chamber. In another embodiment, a volume created by a metering chamber may determine the volume of dispensed fluid. When a diaphragm is compressed from its free or uncompressed position (36) to an inverted or compressed position (37), it may substantially conform to the inner surface of the metering chamber. Fluid enters a metering chamber through an inlet unidirectional valve (34) and exits a metering chamber through an outlet unidirectional valve (25).

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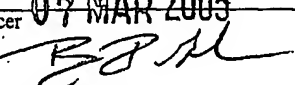
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IPC(7) : B01L 3/02, 3/00, 11/00; G01N 21/00, 1/18, 1/10		
US CL : 422/100, 102, 103, 81; 436/180, 178; 73/863.72, 863.73, 863.84, 863.86		
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Minimum documentation searched (classification system followed by classification symbols) U.S. : 422/100, 102, 103, 81; 436/180, 178; 73/863.72, 863.73, 863.84, 863.86		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Continuation Sheet		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P	US 6,644,944 B2 (KARP) 11 November 2003, entire document	1, 2-3, 6, 7-12, 14, 16-18, 21, 31, 37-47, 50-51, 58, 59, 64, 68-71, 74, 77, 82-102, 104, 106-112, 119-121, 127-132, 138-145, 147-149, 152-154, 158-159, 164-169
X	US 2002/0098122 A1 (SINGH et al.) 25 July 2002, entire document	-2-3, 6-12, 14, 16-18, 21, 31, 37-46, 58-59, 61, 64-65, 68, 74, 82-89, 91-98, 106-109, 120-121, 127-131, 138-143, 148-149, 152, 158-159, 164-169
A, P	US 2004/0063217 A1 (WEBSTER et al.) 01 April 2004	1, 7, 11
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"A"	document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"O"	document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed	
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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, P	US 2003/0143754 A1 (LUM et al.) 31 July 2003	1, 7, 11
A	US 2002/0127146 A1 (BERGH et al.) 12 September 2002	1, 7, 11
A, E	US 6,848,462 B2 (COVINGTON et al.) 01 February 2005	1, 7, 11
A	US 5,947,167 A (BOGEN et al.) 07 September 1999	1, 7, 11
A	US 5,162,237 A (MESSENGER et al.) 10 November 1992	1, 7, 11
A	US 4,515,127 A (WELKER) 25 June 1985	1, 7, 11

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Continuation of B. FIELDS SEARCHED Item 3:

East

Keywords: unidirectional valve, one-directional flow valve, plunger piston, diaphragm, metering, deflection, compressible, chamber, reservoir, staining, check valve, one way valve, flexible, plunger, piston